

Applicant : James A. Herbst et al.
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Attorney's Docket No.: 17539-014001 / STL 10474

REMARKS

In the non-final Office Action mailed March 12, 2004, the Examiner rejected claims 1, 2, 4, 6, 7, 9, 10, 12, 15, 18 and 19, and objected to claims 3, 5, 8, 11, 13, 14, 16, 17 and 20. The Examiner also indicated that claims 3, 5, 11, 13, 14, 16, 17 and 20 would be allowable if rewritten in independent form, and that claims 12, 18 and 19 would be allowable if rewritten to overcome rejections under 35 U.S.C. § 112, second paragraph, and to include all the limitations of the base claim and any intervening claims. In response, Applicants have amended claims 1, 2, 8, 9, 12, 15 and 17-20, canceled claim 3, and added claims 21-26. Applicants request reconsideration of pending claims 1, 2 and 4-26 in view of the amendments and the arguments below.

As a preliminary matter, Applicants note the following amendments to correct informalities. In claims 1 and 2, Applicants have amended the preambles to clarify the transition phrases. In each of dependent claims 17-20, Applicants have amended the preamble to recite the "data storage device" for consistency with the preamble of independent claim 15. Applicants have further amended claims 19 and 20 to improve readability. Finally, Applicants have amended claim 20 to recite a proper Markush group.

Claim Rejections 35 U.S.C. § 112(2) – Claims 12, 18 and 19

The Examiner rejected claims 12, 18, and 19 under 35 U.S.C. § 112, second paragraph as being indefinite. Specifically, the Examiner found that the phrases "value indicating a number of" and "value representing a number of" were unclear. In accordance with the Examiner's suggestion, Applicants have replaced these phrases with more explicit language. Applicants respectfully request that the Examiner consider these amendments to claims 12, 18 and 19, and remove the rejection from these claims.

Claim Rejections 35 U.S.C. § 102(e) – Claims 1-8

The Examiner rejected independent claim 1 and dependent claims 2 and 4 under 35 U.S.C. § 102(e) as being anticipated by Cai et al. The Examiner also rejected claim 7 under 35 U.S.C. § 103 as being unpatentable over Cai. Claim 7 depends from claim 1. Applicants submit that independent claim 1 (as amended herein) defines an invention that is patentable over Cai.

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Applicants' identification of the differences between the claimed invention and Cai's disclosure should not be taken as an admission that Cai is properly considered prior art under any provision of 35 U.S.C. § 102.

The Examiner indicated that claim 3 would be allowable if re-written in independent form. Claim 3 depends directly from claim 2 and indirectly from claim 1. To advance prosecution, Applicants have amended claim 1 to incorporate the limitations recited by claim 3. In so doing, Applicants also incorporated step (b)(i) of claim 2 into amended claim 1 to provide antecedent basis for the limitations of original claim 3. Accordingly, Applicants amended claim 2 to remove step (b)(i). In addition, Applicants have canceled claim 3, and amended claim 8 to depend from claim 1 instead of claim 3.

Accordingly, Applicants submit that the subject matter indicated to be allowable by the Examiner has been incorporated into amended claim 1. As such, Applicants submit that amended claim 1 is in form for allowance, as are claims 2 and 4-8, which depend either directly or indirectly from claim 1. Applicants respectfully request that the Examiner allow claims 1, 2 and 4-8.

Claim Rejections 35 U.S.C. § 103(a) – Claims 9-14

The Examiner rejected independent claim 9 and dependent claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Cai in view of Chang. Applicants have amended claim 9 to recite predetermined patterns of command sequences "associated with known file systems." Applicants submit that independent claim 9 (as amended) defines an invention that is patentable over the cited references.

Applicants' claim 9 (as amended) is directed to a cache manager for managing caching in a data storage device. The cache manager includes a usage statistics module storing statistics associated with a sequence of commands received by the data storage device. It also includes a configuration module storing one or more sets of pattern data indicative of predetermined patterns of command sequences associated with known file systems. In addition, it includes a correlator accessing the usage statistics module and the pattern data in the configuration module and correlating the usage statistics with the pattern data to determine a match between the usage statistics and one of the sets of pattern data.

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Neither cited reference anticipates Applicants' amended claim 9. For example, neither cited reference mentions "file systems" or "commands sequences associated with known file systems." As such, neither cited reference teaches or suggests, "a configuration module storing one or more sets of pattern data indicative of predetermined patterns of command sequences associated with known file systems." Moreover, neither reference teaches or suggests a cache manager that correlates "usage statistics with the pattern data" that are "indicative of predetermined patterns of command sequences associated with known file systems." As such, neither Cai nor Chang anticipates amended claim 9.

Neither do the cited references render claim 9 obvious. Applicants' claimed method provides capabilities the cited references not only cannot provide, but capabilities that they do not even contemplate. For example, neither cited reference teaches or suggests the advantages of a cache manager that includes "a configuration module storing one or more sets of pattern data indicative of predetermined patterns of command sequences associated with known file systems." In accordance with the claimed invention, a cache manager can rapidly adapt the cache management algorithm in accordance with the characteristic data usage according to the file system that provides the command sequences received by the data storage device. By monitoring statistics associated with the received command sequences, Applicants' claimed invention can rapidly correlate the usage statistics with predetermined patterns of a file system, such as that used by Windows NTFS (see Table 1), to determine which of a set of known file systems is using the data storage device. The ability to rapidly identify the file system associated with the received sequence of commands enables the claimed invention to rapidly select an optimal cache management algorithm. Thus, a cache manager in accordance with Applicants' claim 9 can improve cache performance in a way not suggested by either cited reference. Accordingly, the cited references, taken alone or in combination, do not teach or suggest the operation or the advantages achieved by Applicants' claimed invention.

For at least the above reasons, Applicants submit that claim 9 (as amended) defines an invention that is patentable over both Cai and Cai in view of Chang, as do claims 10-14 (as amended), each of which depends from claim 9, either directly or indirectly. Accordingly, Applicants request that claims 9-14 be allowed.

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Claim Rejections 35 U.S.C. § 102(e) – Claims 15-20

The Examiner rejected independent claim 15 under 35 U.S.C. § 102(e) as being anticipated by Cai et al. The Examiner objected to claims 16, 17 and 20 (which depend either directly or indirectly from claim 15), but indicated that these claims would be allowable if rewritten in independent form. Applicants have already addressed the rejections of claims 18 and 19 under 35 U.S.C. § 112, second paragraph (see above).

Applicants have amended claim 15 to recite, inter alia, "each set of usage pattern data being associated with one of a plurality of known file systems." This finds support in the specification, for example, at least at page 8, lines 3-16. As such, these amendments introduce no new matter. In accordance with the remarks above, Applicants submit that claim 15, as amended, is not taught or suggested by Cai. As such, Cai does not anticipate claim 15 (as amended). Accordingly, Applicants respectfully request that the Examiner remove the rejection and allow claim 15.

In addition, Applicants respectfully traverse the Examiner's rejection of claim 15 because the claim has not been properly examined. Applicants submit that claim 15 is in proper means-plus-function format. As such, this claim deserves analysis by the Examiner using the Guidelines for examination set forth in M.P.E.P. §§ 2181-2186 (2003). These Guidelines guide the examination of claims written in accordance with 35 U.S.C. § 112, ¶6. Accordingly, the Examiner has the burden of determining patentability of this claim according to the Guidelines. Applicants respectfully request that the Examiner examine claim 15 according to the Guidelines. Applicants further request that this claim be allowed.

Applicants submit that independent claim 15 (as amended) defines an invention that is patentable over Cai. As such, Applicants respectfully request that the Examiner allow claim 15 (as amended), and allow claims 16-20 (as amended), which depend either directly or indirectly from claim 15.

New Claims 21-26

Applicants have added new independent claim 21, and new claims 22-26, which depend either directly or indirectly from claim 21. Applicants submit that these amendments introduce

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no new matter, and that these claims are allowable subject matter. Applicants respectfully request that the Examiner allow claims 21-26.

Conclusion

Applicants submit that claims 1, 2 and 4-26 are now in condition for allowance. Accordingly, Applicants respectfully request that the Examiner issue a timely Notice of Allowance in this case for all of these claims.

Applicants believe that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue, or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, the arguments made above may not be exhaustive. As such, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Please charge deposit account 06-1050 in the amount of \$176.00 the additional claims fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: June 29, 2004

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